

COMPOSITE CRAFT Predator

Lewis Eckett has been building
the successful 'Lynx' car from Composite Craft

In the limited time that 1/10th scale On-Road racing has been enjoyed in this country, one of the top names to emerge has been that of Phil Booth. To anyone with a long term involvement in the R/C car racing hobby this would come as no real surprise. He is after all the only British driver ever to win a World Championship. Furthermore he did it at a time when 1/8th engine-powered cars were 2-wheel drive only and of a very basic 'flatbed' construction.

Nowadays 1/8th scale racing has moved on somewhat and Phil is the first to admit that he just hasn't got what it takes any more to succeed at the top level. Diverting his attention to buggy racing was not the whole answer and anyway Off-Road in general is a poor substitute for a died-in-the-wool circuit racer.

Which is where 1/10th On-Road comes in.

On-Road is far quicker than buggy racing, slower than 1/8th circuit racing, a lot more fun than either and (at the moment) doesn't require a single-minded approach to winning. Phil, drawing on his vast resources of skill and experience, has been proving the point in emphatic manner, winning a number of events against some hot competition and proving that in 1/10th On-Road he is right there towards the top.

There is however another possible factor in the success story; principally Phil's car - the *Composite Craft* 'Predator Lynx'. As with the majority of the On-Road kits currently available this is an (all) American product born to win on the oval at Lake Whipporwill Speedway and others. The *Composite Craft*

company headed by Kim Davies have been producing carbon/graphite parts for the model racing industry for years. Chassis, differentials and other parts have found their way into the kit boxes of American car manufacturers but *Composite Craft*, until recently, had not produced their own car.

The 'Predator Lynx' following massive demand Stateside has changed all that and provided into the bargain a car that many consider to be the best on the market. Here in Britain the view is reinforced with the aforementioned Mr Booth's success rate on the track. It should come as no surprise to you to now that *Phil Booth Models* are the present UK importers for the *Composite Craft* 'Predator Lynx'.

To my mind the big question here has to be: is the 'Predator' better than the rest or is Phil Booth just a darn good driver? Personally, I think it is more of the latter but at the same time it cannot be denied that the car is also something special. Fortunately I am in a position to find out having been handed one of the cars to evaluate.

The basics

First of all *Composite Craft* produce the car in two configurations. The 'Predator' is the basic car in that it features a conventional flexible 'T' piece rear end. This car retails for £129.

The 'Predator Lynx' is a substantially animal altogether with the provision of a fully floating rear-end system of ball joints and track rod links (links = lynx. Geddit!). The advantages of this feature will become clearer as we go on but for now content yourself with the price, £150.

There is a conversion kit to

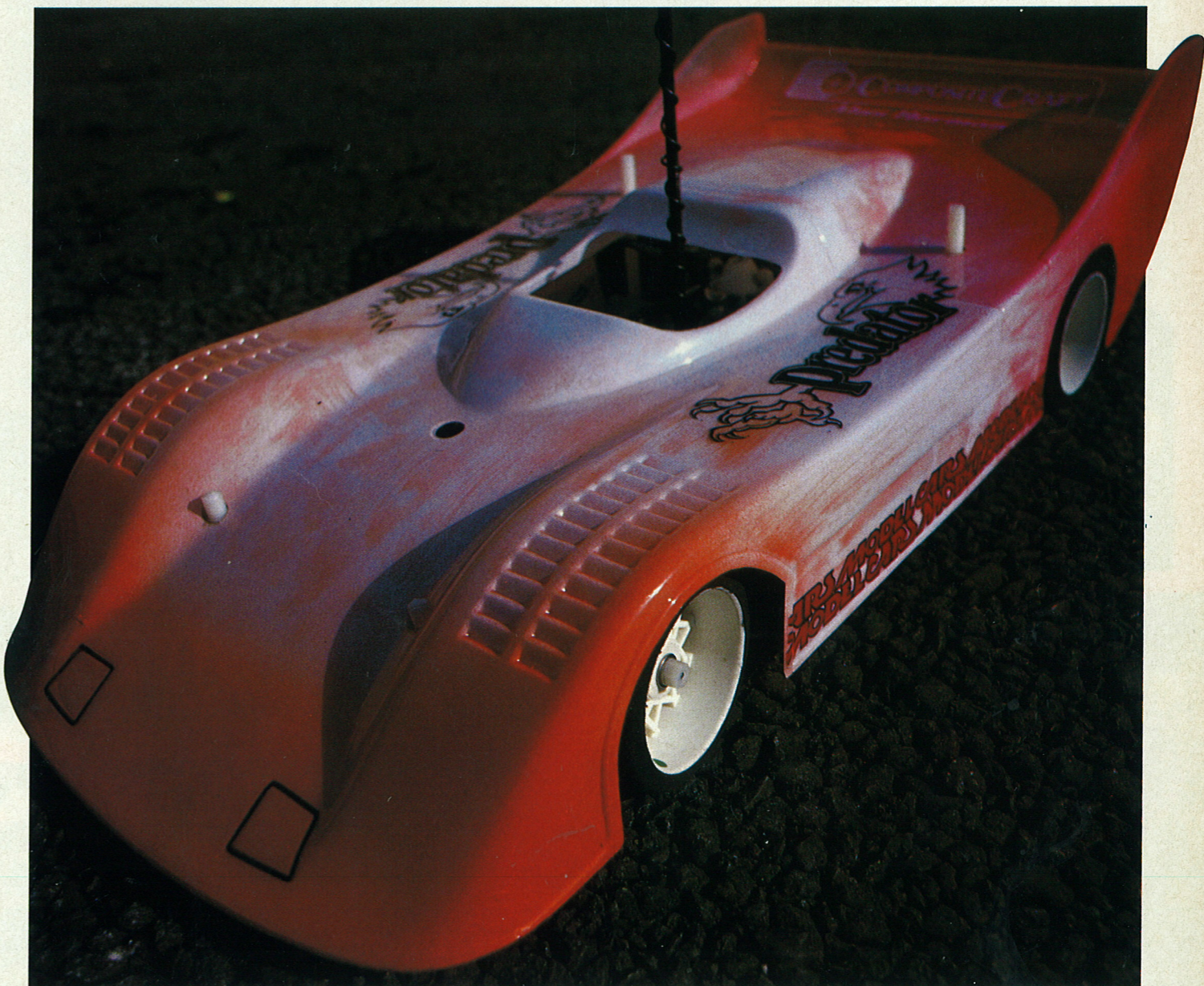
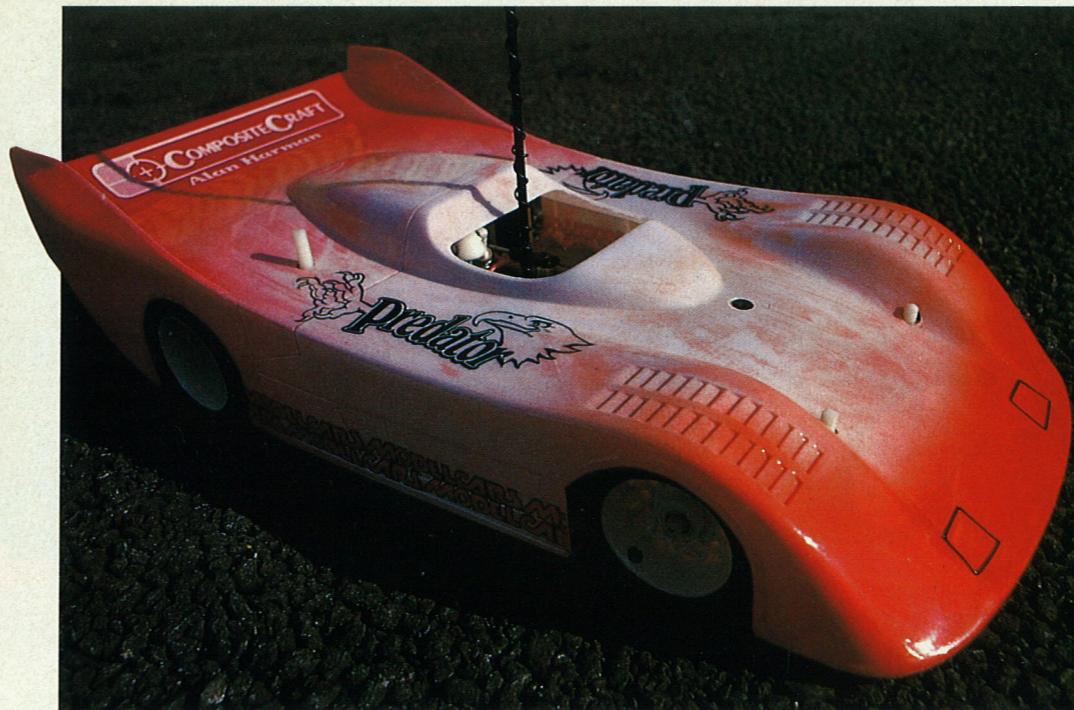
update the 'Predator' to 'Lynx' specification but this retails for \$99US or whatever that is in sterling. It's obvious that the cheaper option in the long run is to go straight for the 'Lynx' straight away.

The kit is by no means complete. For instance you do not get a bodyshell and this must be bought separately. For racing the current favourites are the *Parma* 'Osella' and the *Bolink* 'Toj'. No steering rack rods or ball joints are included or a servo saver so these must either be ripped off another car or purchased new.

On the positive side the ubiquitous *TRC* 'Green' tyres are supplied mounted and trued on their hubs which include the 2" wide rear wheels.

The car

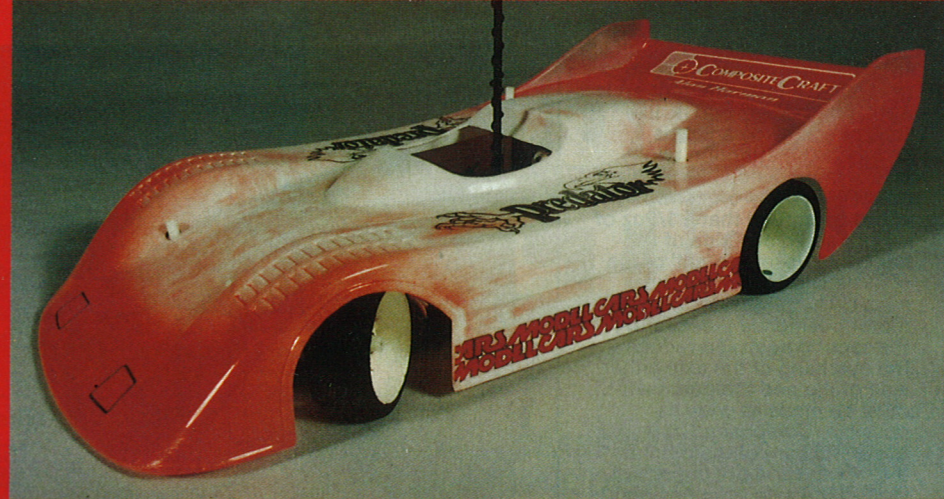
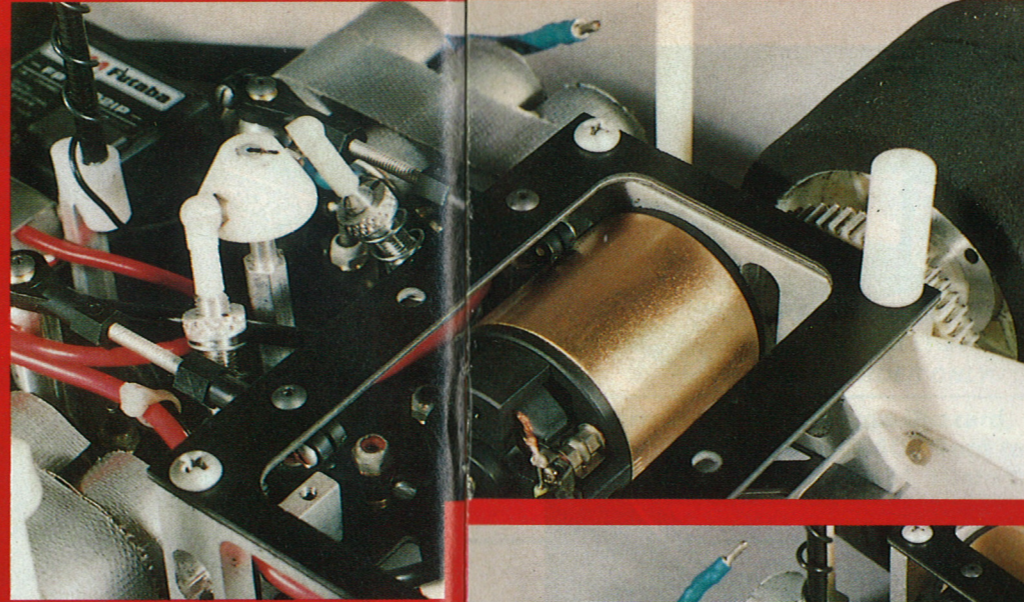
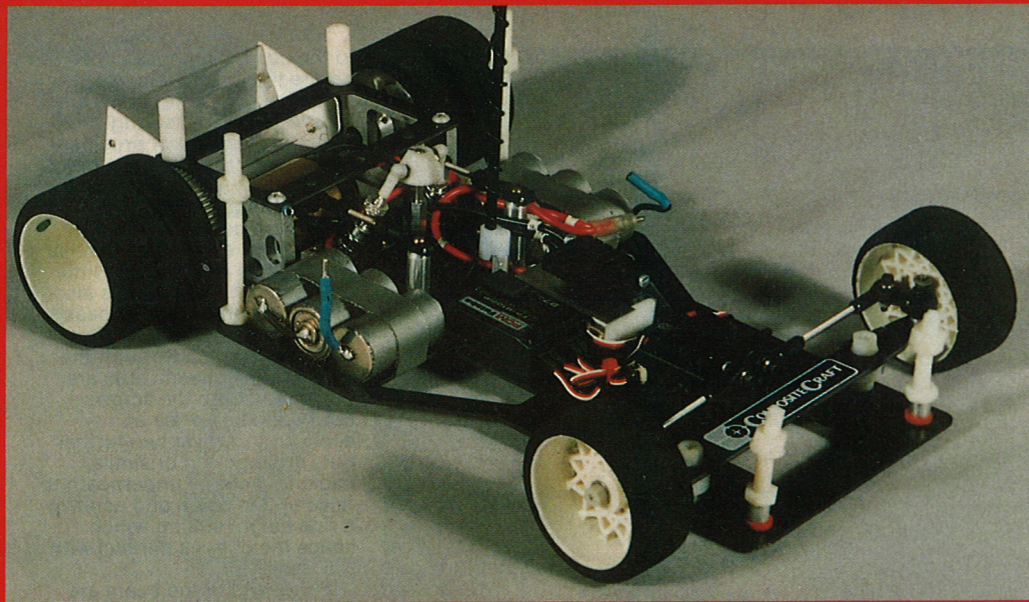
Because there is no bodyshell included the kit box is quite small. Subsequently the biggest thing you come across first is the chassis. The material is carbon/graphite and the quality of the manufacture excellent. Interestingly the slots provided for the saddle pack placement only feature three slots each side which means that extra cells cannot be added or the position of the cells altered front and back. The latter is not a problem since it is universally accepted that the *Ni-Cad* placement should be as rearward as possible. Also the two sections of the pack are set very wide apart which would go some way towards explaining why the car is so super stable. A full 72mm separates the inside edges of the battery slots as supposed to 38mm on my *Parma* "Panther". Aside from the battery slots further cut outs feature perhaps to same weight or more importantly add



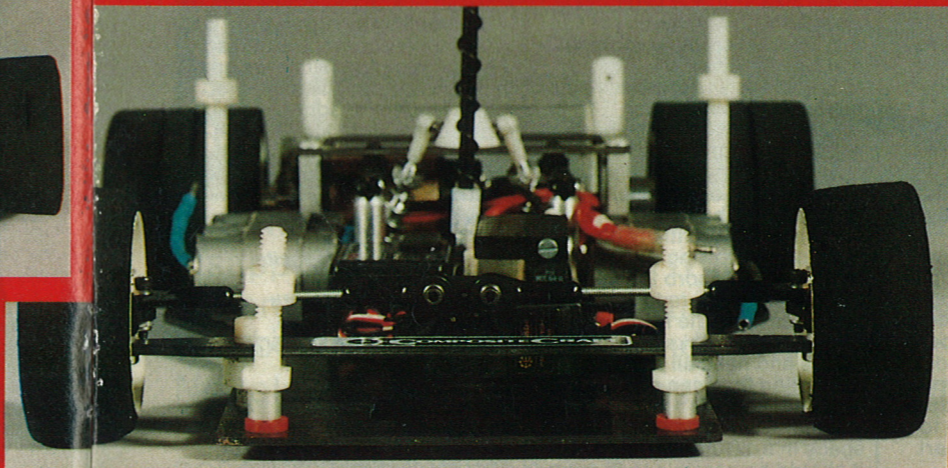
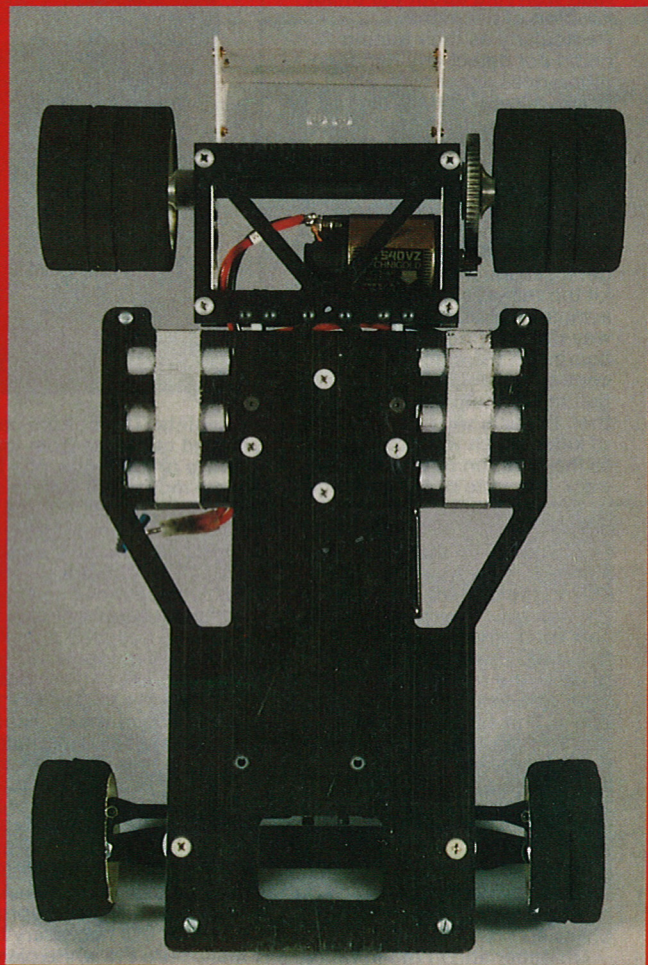
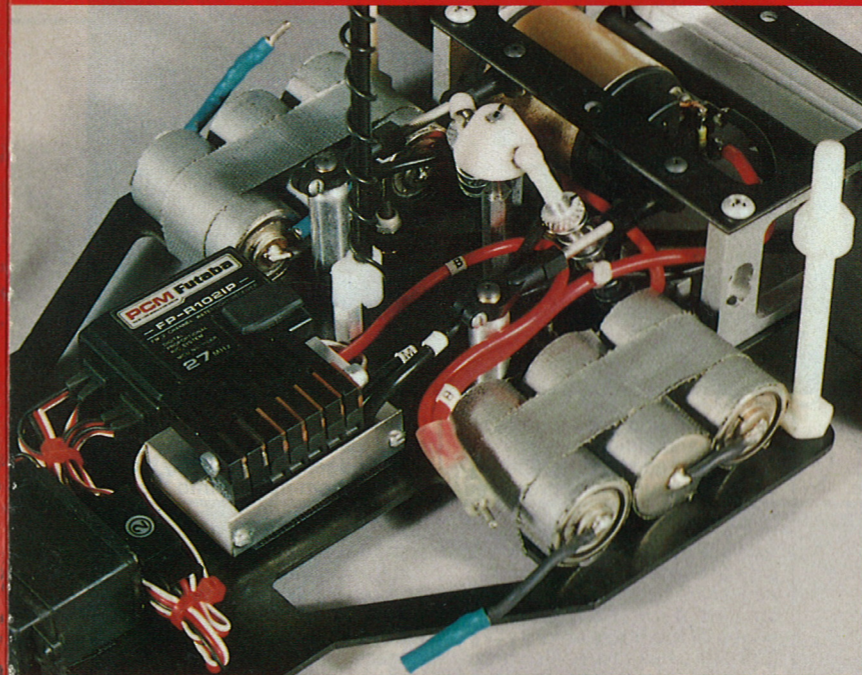
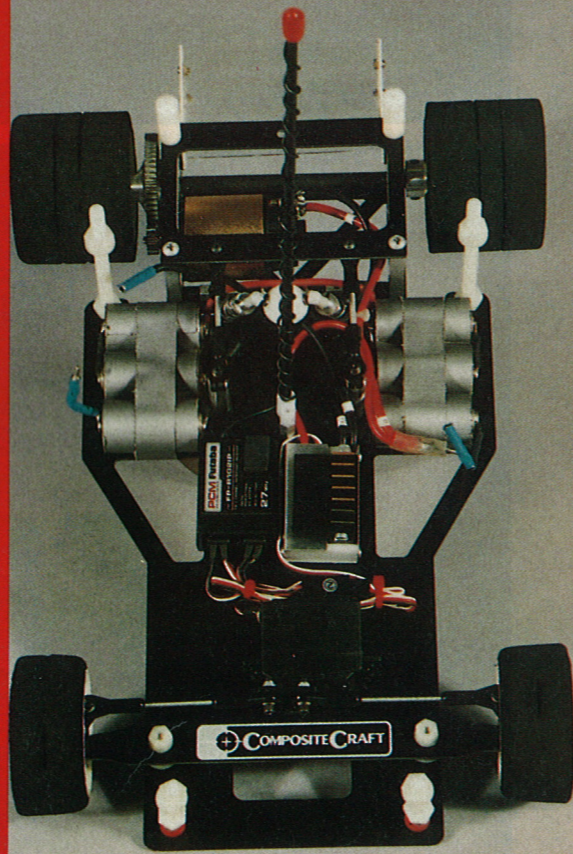
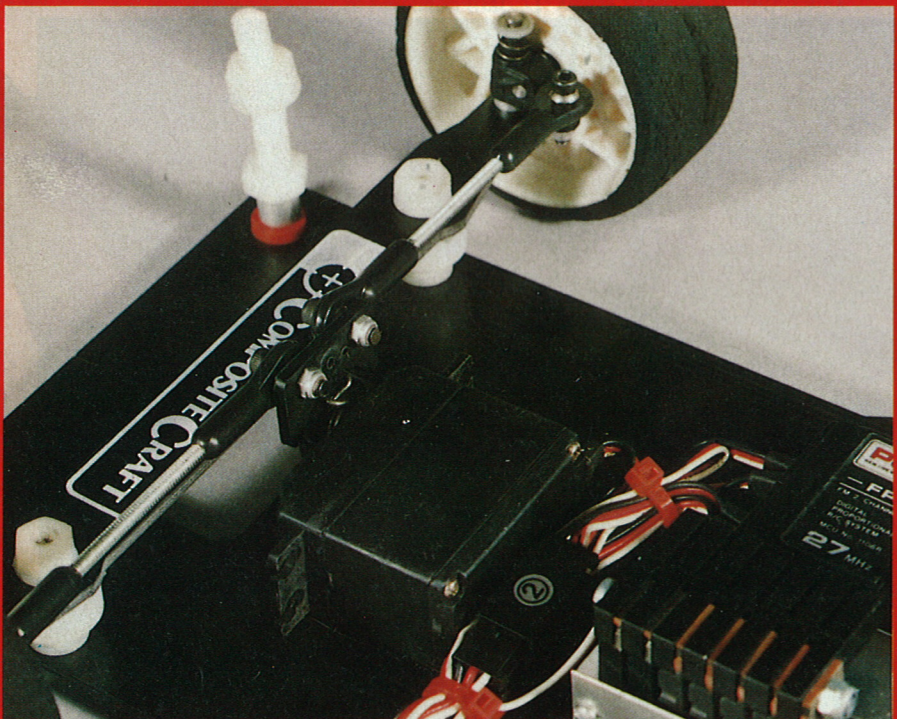
to the cosmetic appeal. Just before the front beam two holes are found and these are for the fitting of steering servo mounting posts (not provided). Incidentally all the screw holes in the chassis are countersunk to provide a smooth undersurface.

The front end will be familiar to everyone and requires little explanation. The Beam is also of the carbon/graphite chassis material and fits into two screws bolted up through the chassis. Two plastic nuts are positioned onto the screws before the beam. By all accounts however two further nuts are required or similar packing material underneath to raise up the beam and achieve a ride height setting which keeps the chassis parallel with the track.

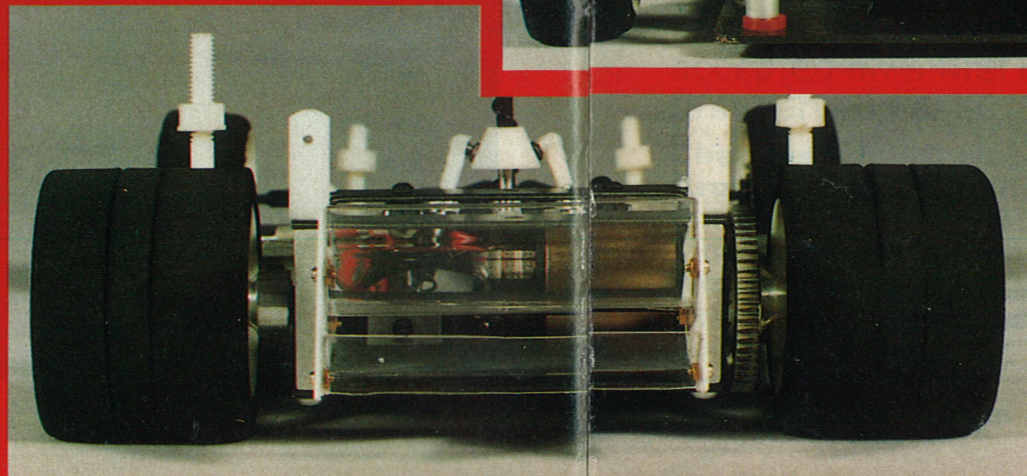
Either end of the beam are the spring loaded stub axle blocks and kingpins. I guess the only area needing care here is the kingpins which must be polished so that the blocks ride up and down easily and smoothly.



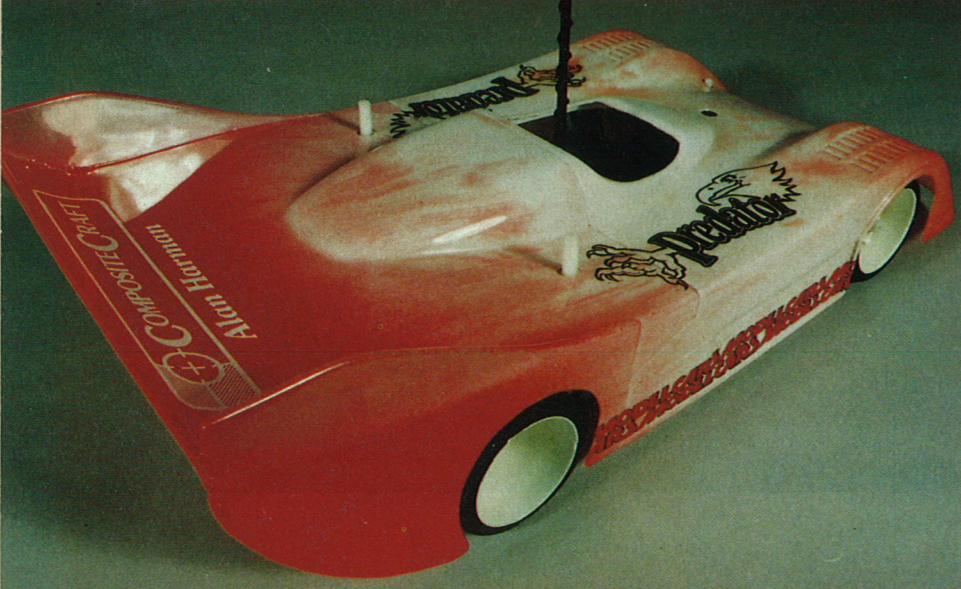
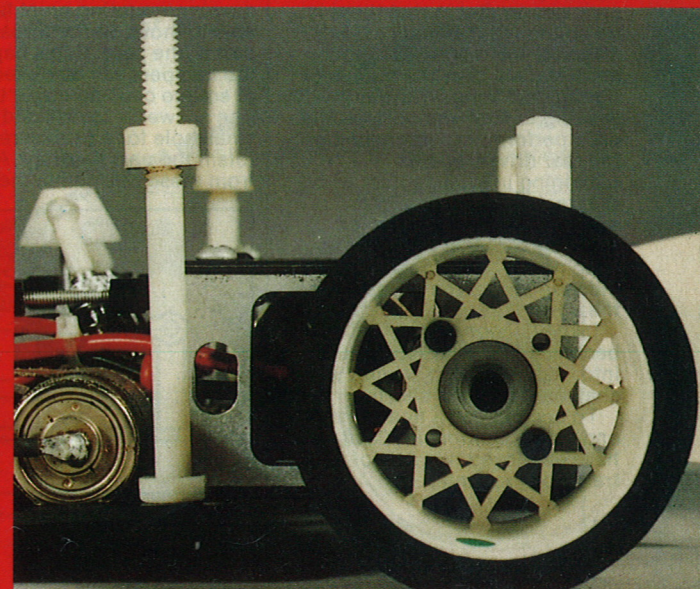
COMPOSITE CRAFT



The 'Lynx' is neatly laid out with a wide cell stance. The kit includes the TRC 'Green' wheels and tyres. The Parma Osella bodyshell fits well, and works.



The 'Lynx' needs spacing on the front axle to lower the ground clearance. Parma castor blocks are useful in setting the car up. 3° is the norm. Tape is used to hold the cells in the car and works well. Radio fitting is easy with plenty of room for all the equipment.



Now for the rear end which is far more complicated but not a problem if care and attention is applied. The rear pod is, like the chassis, wide and this brings to the attention two points immediately. Firstly the motor is set way off centre. It could be argued that 5 1/2oz of weight set to one side of the car could upset the 'set' of the chassis and induce a major tweak. The reason for the motor position is the reason for the second point. To reduce the overhang of the axle either side of the pod the pod itself must be made as wide as possible. *Composite Craft* apparently are of the opinion that it was far more important to stop the axle from flexing than worrying about the offset position of the motor. Particularly as their testing could not detect any handling differences either way. Phil Booth agrees, adding that he has tried a more central motor location and couldn't tell the difference.

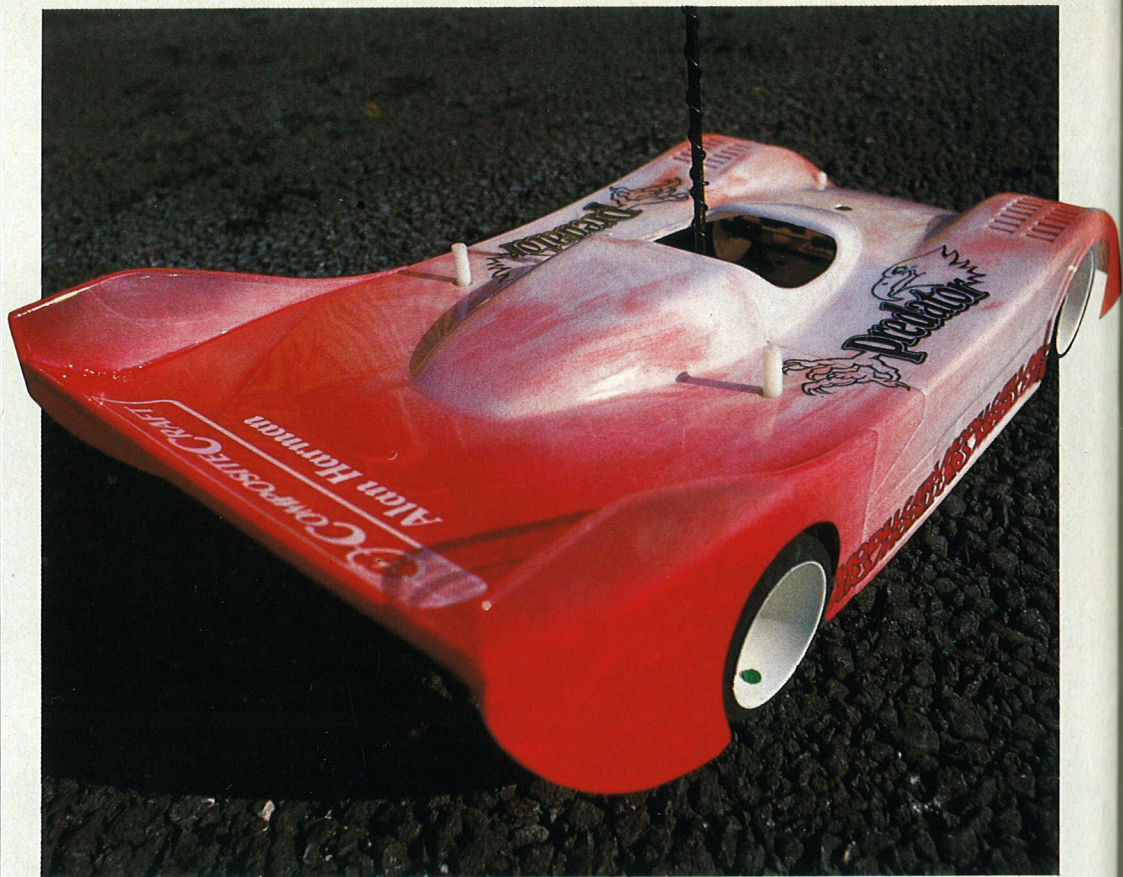
Whatever the case it is important to take great care when building the rear pod principally to make sure you get it set square. On the review kit the rear alloy blocks are not symmetrical or to put it another way the position of the axle bearing in the block is not central. Subsequently if you get one of them upside down then the axle will be forced out of kilter which will do no good to the duration of your battery pack, the state of the bearings or the axle itself.

The theory of the 'Lynx' rear end is based on the desire to achieve a fully floating system able to move in all directions unhindered. The majority of the cars on the market employ a flexible 'T' piece arrangement to allow the rear pod to flex from side to side and up and down. The difference between this and the 'Predator' is the vertical movement of the pod. The 'Predator's' arrangement allows vertical movement without changing the angle of the pod. The diagrams explain this better and show how the 'T' piece system is governed by having a 'solid' link with the chassis.

On paper and in the mind the 'Lynx' system would seem to be an improvement in that there is no change in the angle of attack of the rear wheels under acceleration, over the bumps or during cornering. Without wishing to state the obvious the car's performance depends on the rear driven wheels remaining in total contact with the track at all times. Both systems do the job but it is arguable that the 'Predator' by keeping the rear wheels independent of the chassis has the advantage.

Like all theory it only becomes fact when you put it into practice which is what we shall be able to do shortly.

To accomplish a floating rear end set up *Composite Craft* have employed two sets of track rods mounted on



balljoints. The bottom pair are angled outwards from the centre of the motor pod to allow movement side to side. The top links anchor the pod securely to prevent it from flopping about all over the place. The amount of suspension movement and damping is governed by two oil-filled, coil-over shock absorbers mounted onto a central damper post. Both dampers are angled in from either side of the pod and must be assembled as identically as possible to ensure that the car does not become tweaked to one side. Two areas require attention here. The bolt holding the damper post to the chassis is too long and must be cut down to allow the post to sit right down. More importantly however it is necessary to make sure the white plastic dome which provides the top damper mounting point is not able to move on the threaded part of the post. If this happens the dampers will be pulled out of square causing major tweak. The answer is to drill and tap a small hole for a grub screw to retain the part securely. Apart from these two points the

whole rear end goes together quickly and simply.

The limited slip differential axle is of course also produced from carbon fibre and very well made. Four ball races for the axle are provided fitting either side of the alloy blocks. It is necessary to remove a small amount of material from the edges of the holes before fitting the ball races. Also make sure they are squeezed in, preferable in a vice and not inserted with hammer.

With the wheels, body posts and bumper fitted the basic rolling chassis is complete and ready for the radio gear. There is a division of thought about whether bumpers are necessary or not. Some feel that the force of any impact will transmit the shock back up the chassis with potentially dire results. By allowing the bodyshell to absorb the impact these shocks are reduced. On the other hand the front beam and steering blocks are quite fragile and need all the protection they can get. It's your choice.

Because there is so much space in a 1/10th On-Road car it should be possible to fit even

the largest radio gear. It is a good idea to file away the sharp edges of the battery slots to stop them ripping into the heatshrink of the cells. Carbon conducts electricity so we don't want the pack shorting itself out through the chassis do we! The other advantage is that the cells sit lower and the securing tape will not be cut by the edges.

Unfortunately the car is on its way back to the Editor who is threatening (again - yawn) to thrash all and sundry with it at the next big race. While we are there I will persuade him to let me have a go for some on-track evaluations. Hopefully we will also be able to have a look at Mr Booth's car for some inside information.

Car: *Predator Lynx*.
 Manufacturer: *Composite Craft, America*.
 UK importer: *Phil Booth Models, 54 Valley Drive, Newthorpe, Notts NG15 2DT*.
 Tel: 0773 769323.
 Price: £150.

Below: The two most popular types of rear suspension; left, the Lynx, and right, the Parma TRC type.

